In the Claims:

1. (currently amended) In an information communication network comprising a head-end device in communication with a tail-end device via a number of routes for routing information to various destinations, a method for limiting traffic volume in a tunnel by said head-end device, the method comprising:

establishing said tunnel to said tail-end device as one of said number of routes;

determining a number of said destinations ~~that are serviced by said~~within a predetermined number of hops of said tail-end device to ~~obtain~~ identify serviced destinations; and

selectively routing only information destined for said serviced destinations through said tunnel ~~responsive to a relationship between a destination address of the serviced destination and the tail-end device.~~

2. (currently amended) The method of claim 1, wherein said serviced destinations comprise directly-connected hosts/subnets of said tail-end device and wherein the predetermined number of hops is one.

3. (cancelled)

4. (currently amended) The method of claim ~~3~~1, further comprising monitoring tunnel utilization, wherein said determining further comprises dynamically

increasing said predetermined number of router hops if said tunnel is under-utilized and decreasing said predetermined number of router hops if said tunnel is over-utilized.

5. (original) The method of claim 1, wherein said serviced destinations comprise said tail-end device.

6. (original) The method of claim 1, wherein said serviced destinations comprise a destination for which said tunnel is a better route to said destination than a predetermined shortest path route to said destination.

7. (original) The method of claim 6, wherein said determining comprises:
calculating said shortest path route to said destination;
determining a shortest path route metric associate with said shortest path route;
determining a tunnel metric associated with said tunnel; and
determining from said shortest path route metric and said tunnel metric that said tunnel is a better route to said destination than said shortest path route.

8. (original) The method of claim 1, wherein said head-end device comprises a link state database, and wherein said determining comprises examining said link state database to determine which of said destinations are serviced by said tail-end device.

9. (original) The method of claim 1, wherein said tunnel comprises a label switched path from said head-end device to said tail-end device, and wherein said routing comprises affixing to said information a predetermined label associated with said label switched path for label switching of said information from said head-end device to said tail-end device by a number of intermediate devices.

10. (original) The method of claim 1, wherein said head-end device comprises a forwarding table indicating one of said number of routes for each of said number of destinations, and wherein said determining further comprises indicating said tunnel for each of said serviced destinations in said forwarding table.

11. (original) The method of claim 10, wherein said routing comprises determining from said forwarding table that said information is associated with said tunnel.

12. (original) The method of claim 1, further comprising routing information destined for other than said serviced destinations over one of said number of routes other than said tunnel.

13. (currently amended) An apparatus for limiting traffic volume in a tunnel between said apparatus and a tail-end device, said apparatus having a number

of routes to said tail-end for routing information to various destinations, the apparatus comprising:

tunnel establishment logic operably coupled to establish said tunnel to said tail-end device as one of said number of routes;

determination logic operably coupled to determine a number of said destinations that are ~~serviced by~~within a predetermined number of hops of said tail-end device to ~~obtain~~ identify serviced destinations; and

routing logic operably coupled to selectively route information destined only for said serviced destinations to said tail-end device through said tunnel ~~responsive to a relationship between destination addresses of the serviced destinations and the tail-end device~~.

14. (original) The apparatus of claim 13, wherein said serviced destinations comprise directly-connected hosts/subnets of said tail-end device.

15. (cancelled)

16. (currently amended) The apparatus of claim ~~15~~13, further comprising monitoring tunnel utilization, wherein said determination logic is operably coupled to dynamically increase said predetermined number of router hops if said tunnel is under-utilized and decrease said predetermined number of router hops if said tunnel is over-utilized.

17. (original) The apparatus of claim 13, wherein said serviced destinations comprise said tail-end device.

18. (original) The apparatus of claim 13, wherein said serviced destinations comprise a destination for which said tunnel is a better route to said destination than a predetermined shortest path route to said destination.

19. (original) The apparatus of claim 18, wherein said determination logic is operably coupled to calculate said shortest path route to said destination; determine a shortest path route metric associate with said shortest path route; determine a tunnel metric associated with said tunnel; and determine from said shortest path route metric and said tunnel metric that said tunnel is a better route to said destination than said shortest path route.

20. (original) The apparatus of claim 13, further comprising a link state database, and wherein said determination logic is operably coupled to examine said link state database to determine which of said destinations are serviced by said tail-end device.

21. (original) The apparatus of claim 13, wherein said tunnel comprises a label switched path from said head-end device to said tail-end device, and wherein said routing logic is operably coupled to affix to said information a predetermined label associated with said label switched path for label

switching of said information from said head-end device to said tail-end device by a number of intermediate devices.

22. (original) The apparatus of claim 13, further comprising a forwarding table indicating one of said number of routes for each of said number of destinations, and wherein said determination logic is operably coupled to indicate said tunnel for each of said serviced destinations in said forwarding table.

23. (original) The apparatus of claim 22, wherein said routing logic is operably coupled to determine from said forwarding table that said information is associated with said tunnel.

24. (original) The apparatus of claim 13, wherein said routing logic is operably coupled to route information destined for other than said serviced destinations over one of said number of routes other than said tunnel.

25. (currently amended) A computer program for controlling a head-end device to limit traffic volume in a tunnel between said apparatus and a tail-end device, said apparatus having a number of routes to said tail-end for routing information to various destinations, the computer program comprising:

tunnel establishment logic programmed to establish said tunnel to said tail-end device as one of said number of routes;

determination logic programmed to determine a number of said destinations that are ~~serviced by~~within a predetermined number of hops of said tail-end device to ~~obtain~~ identify serviced destinations; and

routing logic programmed to selectively route only information destined for said serviced destinations to said tail-end device through said tunnel ~~responsive to a relationship between destination addresses of the serviced destinations and the tail-end device~~.

26. (original) The computer program of claim 25, wherein said serviced destinations comprise directly-connected hosts/subnets of said tail-end device.

27. (cancelled)

28. (currently amended) The computer program of claim ~~27~~25, further comprising monitoring logic programmed to monitor tunnel utilization, wherein said determination logic is further programmed to dynamically increase said predetermined number of router hops if said tunnel is under-utilized and decrease said predetermined number of router hops if said tunnel is over-utilized.

29. (original) The computer program of claim 25, wherein said serviced destinations comprise said tail-end device.

30. (original) The computer program of claim 25, wherein said serviced destinations comprise a destination for which said tunnel is a better route to said destination than a predetermined shortest path route to said destination.

31. (original) The computer program of claim 30, wherein said determination logic is programmed to calculate said shortest path route to said destination; determine a shortest path route metric associate with said shortest path route; determine a tunnel metric associated with said tunnel; and
determine from said shortest path route metric and said tunnel metric that said tunnel is a better route to said destination than said shortest path route.

32. (original) The computer program of claim 31, wherein said determination logic is programmed to examine a link state database to determine which of said destinations are serviced by said tail-end device.

33. (original) The computer program of claim 25, wherein said tunnel comprises a label switched path from said head-end device to said tail-end device, and wherein said routing logic is programmed to affix to said information a predetermined label associated with said label switched path for label switching of said information from said head-end device to said tail-end device by a number of intermediate devices.

34. (original) The computer program of claim 25, further comprising a forwarding table indicating one of said number of routes for each of said number of destinations, and wherein said determination logic is programmed to indicate said tunnel for each of said serviced destinations in said forwarding table.

35. (original) The computer program of claim 34, wherein said routing logic is programmed to determine from said forwarding table that said information is associated with said tunnel.

36. (original) The computer program of claim 25, wherein said routing logic is programmed to route information destined for other than said serviced destinations over one of said number of routes other than said tunnel.

37. (original) The computer program of claim 25 embodied in a computer readable medium.

38. (original) The computer program of claim 25 embodied as a data signal.

39. (currently amended) In an information communication network comprising a head-end device in communication with a tail-end device via a number of routes for routing information to various destinations, a method for limiting traffic volume in a tunnel, the method comprising:

establishing said tunnel between said head-end device and said tail-end device as one of said number of routes;

receiving information for a destination by said head-end device;

determining whether said destination is ~~serviced by~~within a predetermined number of hops of said tail-end device to ~~obtain~~ determine whether the destination is a serviced ~~destinations~~destination~~, wherein said destination is determined to be serviced by said tail-end device responsive to a relationship between an address of the destination and the tail-end device~~; and

selectively routing said information by said head-end device to said tail-end device over said tunnel, if and only if said destination is ~~serviced by said tail-end device~~a serviced destination.

40. (original) The method of claim 39, wherein determining whether said destination is serviced by said tail-end device comprises determining whether said destination is a directly-connected host/subnet of said tail-end device.

41. (cancelled)

42. (currently amended) The method of claim ~~41~~39, further comprising monitoring tunnel utilization, wherein said determining further comprises dynamically increasing said predetermined number of router hops if said

tunnel is under-utilized and decreasing said predetermined number of router hops if said tunnel is over-utilized.

43. (original) The method of claim 39, wherein said destination is serviced by said tail-end device comprises determining whether said destination is said tail-end device.

44. (original) The method of claim 39, wherein determining whether said destination is serviced by said tail-end device comprises:

calculating a shortest path route to said destination;

determining a shortest path route metric associate with said shortest path route;

determining a tunnel metric associated with said tunnel; and

determining from said shortest path route metric and said tunnel metric that said tunnel is a better route to said destination than said shortest path route.

said serviced destinations comprise a destination for which said tunnel is a better route to said destination than a predetermined shortest path route to said destination.

45. (original) The method of claim 39, wherein said head-end device comprises a link state database, and wherein said determining comprises examining said link state database to determine which of said destinations are serviced by said tail-end device.

46. (original) The method of claim 39, wherein said tunnel comprises a label switched path from said head-end device to said tail-end device, and wherein said routing comprises affixing to said information a predetermined label associated with said label switched path for label switching of said information from said head-end device to said tail-end device by a number of intermediate devices.

47. (original) The method of claim 46, wherein said routing further comprises said tail-end device removing said label from said information and forwarding said information to said destinations based upon destination address information in said information.

48. (original) The method of claim 39, further comprising routing said information by said head-end device to said tail-end device over one of said routes other than said tunnel, if and only if said destination is not serviced by said tail-end device.

49. (currently amended) An apparatus for limiting traffic volume in a tunnel between said apparatus and a tail-end device, said apparatus having a number of routes to said tail-end for routing information to various destinations, the apparatus comprising:

tunnel establishment logic operably coupled to establish said tunnel to said tail-end device as one of said number of routes;

receiving logic operably coupled to receive information for a destination;

determination logic operably coupled to determine whether said destination is serviced by said tail-end device responsive to ~~a relationship between an address of~~ said destination being within a predetermined number of hops of ~~and~~ said tail-end device; and

routing logic operably coupled to selectively route said information to said tail-end device through said tunnel if and only if said destination is service by said tail-end device.

50. (original) The apparatus of claim 49, wherein said determination logic is operably coupled to determine whether said destination is a directly-connected host/subnet of said tail-end device.

51. (cancelled)

52. (original) The apparatus of claim 51, further comprising monitoring logic operably coupled to monitor tunnel utilization, wherein said determination logic is operably coupled to dynamically increase said predetermined number of router hops if said tunnel is under-utilized and decrease said predetermined number of router hops if said tunnel is over-utilized.

53. (original) The apparatus of claim 49, wherein said determination logic is operably coupled to determine whether said destination is said tail-end device.

54. (original) The apparatus of claim 49, wherein said determination logic is operably coupled to calculate said shortest path route to said destination, determine a shortest path route metric associate with said shortest path route, determine a tunnel metric associated with said tunnel, and determine from said shortest path route metric and said tunnel metric that said tunnel is a better route to said destination than said shortest path route.

55. (original) The apparatus of claim 49, further comprising a link state database, wherein said determination logic is operably coupled to examine said link state database to determine which of said destinations are serviced by said tail-end device.

56. (original) The apparatus of claim 49, wherein said tunnel comprises a label switched path to said tail-end device, and wherein said routing logic is operably coupled to affix to said information a predetermined label associated with said label switched path for label switching of said information from said head-end device to said tail-end device by a number of intermediate devices.

57. (original) The apparatus of claim 49, wherein said routing logic is operably coupled to route said information to said tail-end device over one of said routes other than said tunnel, if and only if said destination is not serviced by said tail end device.

58. (currently amended) A computer program for controlling a head-end device to limit traffic volume in a tunnel between said head-end device and a tail-end device, said head-end device having a number of routes to said tail-end for routing information to various destination, the computer program comprising:

tunnel establishment logic programmed to establish said tunnel to said tail-end device as one of said number of routes;

receiving logic programmed to receive information for a destination;

determination logic programmed to determine whether said destination is serviced by said tail-end device responsive to ~~a relationship between an address of said destination and~~the destination being within a predetermined number of hops of the tail-end device; and

routing logic programmed to selectively route said information to said tail-end device through said tunnel if and only if said destination is ~~service~~ serviced by said tail-end device.

59. (original) The apparatus of claim 58, wherein said determination logic is programmed to determine whether said destination is a directly-connected host/subnet of said tail-end device.

60. (cancelled)

61. (original) The computer program of claim 60, further comprising monitoring logic programmed to monitor tunnel utilization, wherein said determination logic is programmed to dynamically increase said predetermined number of router hops if said tunnel is under-utilized and decrease said predetermined number of router hops if said tunnel is over-utilized.

62. (original) The computer program of claim 59, wherein said determination logic is programmed to determine whether said destination is said tail-end device.

63. (original) The computer program of claim 59, wherein said determination logic is programmed to calculate said shortest path route to said destination; determine a shortest path route metric associate with said shortest path route; determine a tunnel metric associated with said tunnel; and determine from said shortest path route metric and said tunnel metric that said tunnel is a better route to said destination than said shortest path route.

64. (original) The computer program of claim 59, wherein said determination logic is programmed to examine a link state database to determine which of said destinations are serviced by said tail-end device.

65. (original) The computer program of claim 59, wherein said tunnel comprises a label switched path from said head-end device to said tail-end device, and wherein said routing logic is programmed to affix to said information a predetermined label associated with said label switched path for label switching of said information from said head-end device to said tail-end device by a number of intermediate devices.

66. (original) The computer program of claim 59, wherein said routing logic is programmed to route said information to said tail-end device over one of said routes other than said tunnel, if and only if said destination is not serviced by said tail end device.

67. (original) The computer program of claim 59 embodied in a computer readable medium.

68. (original) The computer program of claim 59 embodied as a data signal.

69. (currently amended) A communication system comprising a head-end device in communication with a tail-end device via a number of routes including a

tunnel for routing information to various destinations, wherein said head-end device is operably coupled to determine a number of said destinations that are serviced by said tail-end device and route information to said serviced destinations over said tunnel, wherein destinations are determined to be serviced by said tail-end device responsive to ~~a relationship between addresses of the destinations and~~ the destinations being within a predetermined number of hops of the tail-end device.

70. (original) The communication system of claim 69, wherein said serviced destinations comprise directly-connected hosts/subnets of said tail-end device.

71. (cancelled)

72. (original) The communication system of claim 69, wherein said serviced destinations comprise said tail-end device.

73. (original) The communication system of claim 69, wherein said serviced destinations comprise a destination for which said tunnel is a better route to said destination than a predetermined shortest path route to said destination.

74. (original) The communication system of claim 69, wherein said tunnel comprises a label switched path from said head-end device to said tail-end device.

75. (original) The communication system of claim 74, wherein said head-end device is operably coupled to affix to said information a predetermined label associated with said label switched path for label switching of said information from said head-end device to said tail-end device by a number of intermediate devices, and wherein said tail-end device is operably coupled to remove said label from said information and forward said information to said destinations based upon destination address information in said information.

76. (original) The communication system of claim 69, wherein said head-end device is operably coupled to route information destined for other than said serviced destinations over one of said number of routes other than said tunnel.